Fr. Conceicao Rodrigues College of Engineering

Department of Computer Engineering

Academic Term : July-Nov 2023-24

Class : T.E. (Computer B)
Subject Name: Computer network Lab
Subject Code : CSL 502

Experiment No:	**2**
Date of Performance:	1/8/23
Roll No:	**9542**
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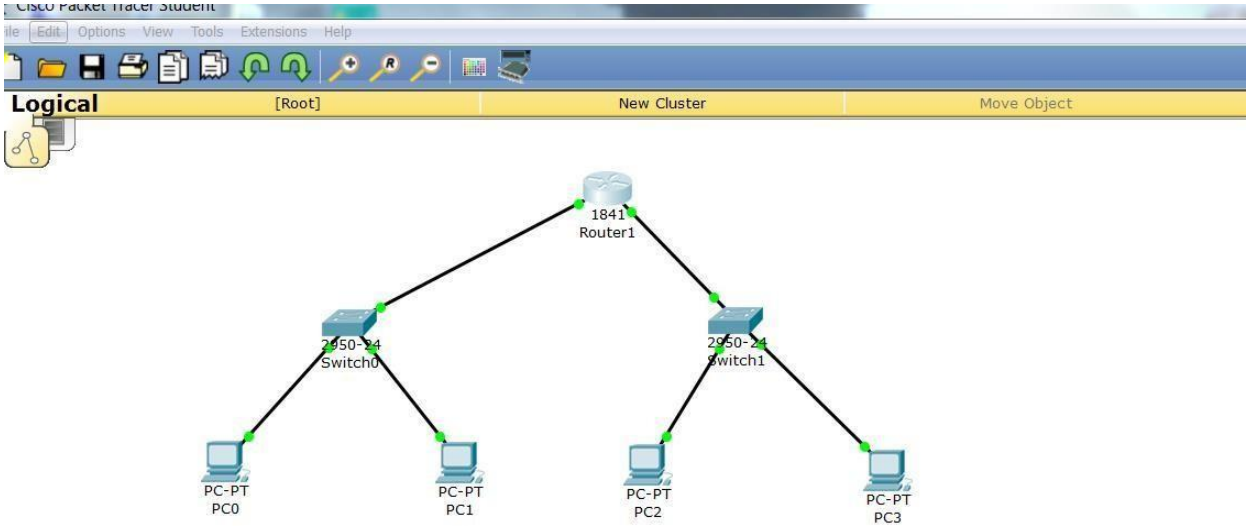
AIM: Build a simple network topology and configure it for static routing protocol using packet tracer. Setup a network and configure IP addressing, subnetting, masking.

THEORY: Cisco Packet Tracer is a cross-platform visual simulation tool designed by Cisco Systems that allows users to create network topologies and imitate modern computer networks. The software allows users to simulate the configuration of Cisco routers and switches using a simulated command line interface. Packet Tracer makes use of a drag and drop user interface, allowing users to add and remove simulated network devices as they see fit. The software is mainly focused towards Certified Cisco Network Associate Academy students as an educational tool for helping them learn fundamental CCNA concepts.

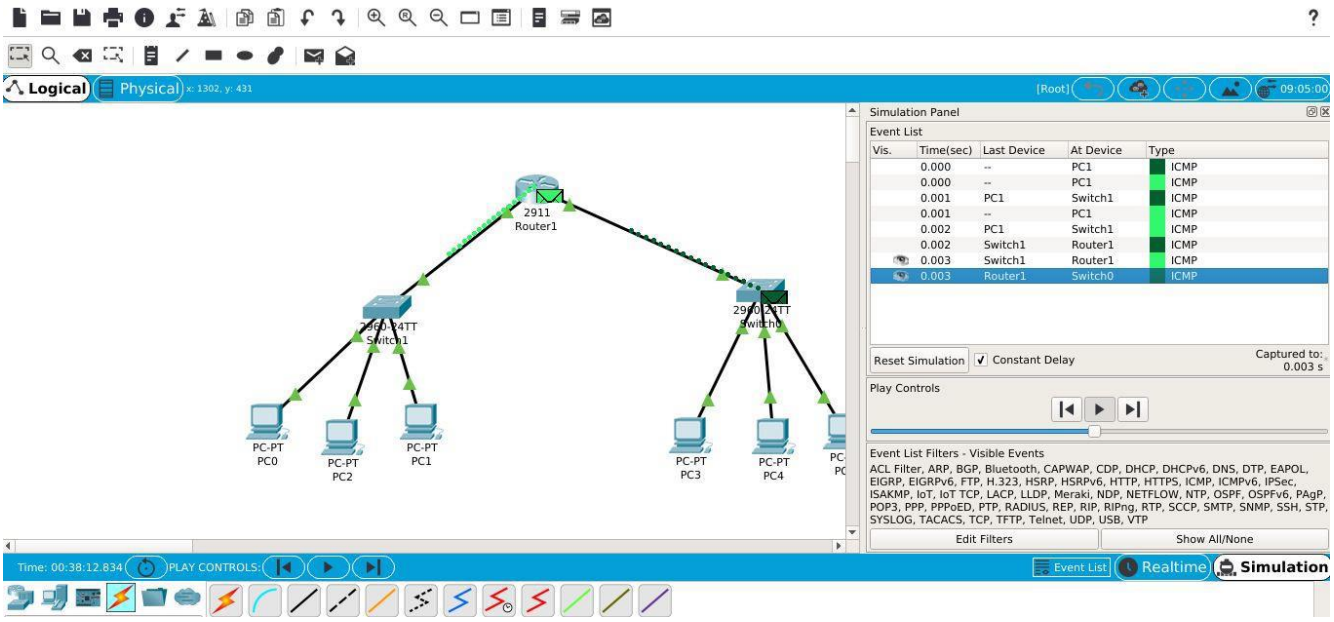
Steps:

1. Pick a total of 4 pcs in the packet tracer application.
2.We need 2 switches and a single router
3.Give the appropriate IP addresses to the pcs accordingly.
4.Test the network with the help of packets.

Connect the devices as shown below:



Output: (Attach screenshot of op)



CONCLUSION: Hence we have successfully created simple network using CISCO PACKET TRACER and tested it.

Post Lab Assignments:

1. Explain the different Network Devices in brief

Router: Connects different networks, directs data packets efficiently.

Switch: Connects devices within a network, improves data flow.

Access Point (AP): Extends wired networks wirelessly.

Firewall: Protects networks from unauthorized access and threats

Gateway: Bridges different networks with different protocols.

Load Balancer: Distributes traffic among servers for better performance.

Proxy Server: Intermediary for internet requests, enhances security and speed.

Modem: Converts digital data for transmission over communication channels.

Bridge: Connects network segments, filters and forwards data.

These devices facilitate network communication, security, and efficiency.

2. Differentiate between Hubs and switches

Hubs:

Function: Hubs operate at the physical layer of the OSI model and simply broadcast incoming data to all connected devices.

Data Transmission: They use a broadcast mechanism, sending data to all devices on the network regardless of the destination.

Efficiency: Hubs lead to network congestion as all devices receive all data, resulting in lower overall network performance.

Collision Domain: Devices connected to a hub share a single collision domain, which can lead to collisions and data collisions.

Obsolete: Hubs are largely obsolete due to their inefficiency and limited functionality.

Switches:

Function: Switches operate at the data link layer of the OSI model and intelligently forward data only to the intended recipient.

Data Transmission: They use MAC addresses to determine the correct destination for data, reducing unnecessary network traffic.

Efficiency: Switches improve network efficiency by creating dedicated communication paths between sender and receiver.

Collision Domain: Each port on a switch has its collision domain, reducing the likelihood of data collisions.

Performance: Switches offer better performance, scalability, and security compared to hubs.

In summary, while both hubs and switches are used for network connectivity, switches are more efficient and provide better performance by selectively forwarding data to the appropriate device, while hubs simply broadcast data to all devices, leading to network congestion and reduced performance.